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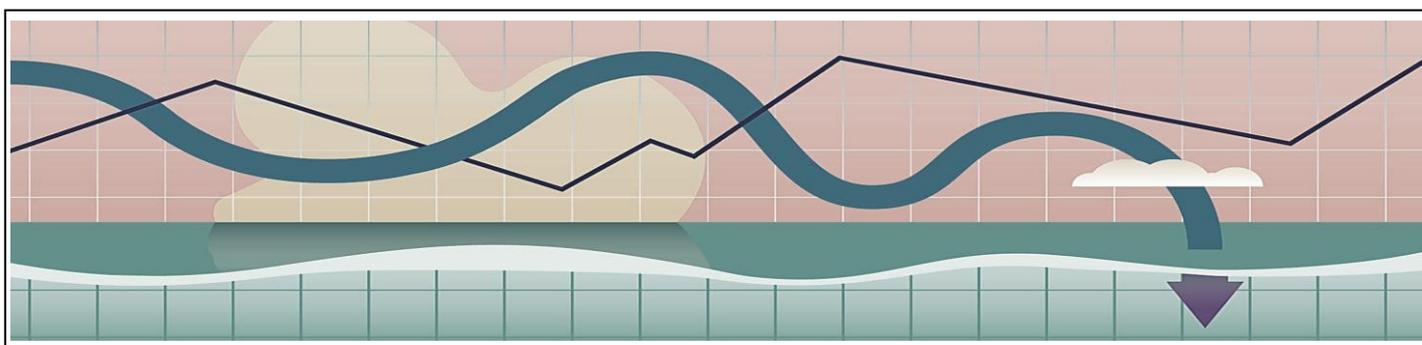RESEARCH JOURNAL

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The role of young adults on preparedness and behavioral responses on flood disaster risk in the urban-rural area of South Kalimantan Province

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ABSTRACT

The worst flood disaster in South Kalimantan Province happened in the early 2021. 10 out of 13 districts/cities are affected by the flood. Therefore, it is needed to conduct a study that resulting in data as an evidence base in designing the program of community empowerment in the phase of disaster preparedness. In the research, a study regarding young adults role in preparedness and behavioral responses on flood disaster risk in the urban-rural area of South Kalimantan Province was proposed, especially in the young adults. Young adults play an important role in the understanding of context and sensitive to change, information and technology, which are predicted to be capable of understanding flood disaster risk that are exist in where they live, which affecting in the growth of preparedness effort. The research aimed to analyze the variables of preparedness and behavioral responses on flood disaster risk on young adults in the urban-rural area. The researched variables: area characteristics (urban-rural), threat assessment, disaster preparedness, evacuation and rescue management, and disaster information exposure. The data will be analyzed by chi square or fisher, to view the significance of statistical calculations between the 2 variables, CI limit 0,05 (95%) was used. The research samples are 564 people of 10 districts/cities in South Kalimantan Province. The data collection is done online by using google form questionnaire. The research result shows that the p values in each the variable of threat assessment, disaster preparedness, evacuation and rescue management and disaster information exposure are 0,717; 0,755; 0,001 and 0,037, respectively, therefore, it can be concluded that there is no correlation between threat assessment and disaster preparedness with the respondents' area characteristics, also, there are correlations between evacuation and rescue management, and disaster information exposure with the respondents' area characteristics.

KEYWORDS: Flood, preparedness, behavior, young adult, urban rural.

I. INTRODUCTION

Flood is one of the most affecting natural disasters and become the cause of loss globally. In the previous decade, the flood was estimated to cause loss in the amount of US$ 360 billion, 9 times higher than the 1980s[1]. In Indonesia, National Board for Disaster Management (BNPB) identifies 1.927 cases of natural disaster which 99% of them are hydrometeorology disasters and flood is the disaster that happens the most, there are 726 floods recorded in January until August of 2020 which caused 2,8 million people evacuated, the loss of housing sector (4.581 units were heavily damaged, 2.784 units were moderately damaged, 9.833 units were mildly damaged and 540.739 units were submerged), public facilities were also damaged (486 educational facilities, 581 worship facilities, 112 health facilities, 109 offices and 299 bridges were damaged). Not only that, flood is also the most deadly disaster, on the same period there were 100 people dead and 17 people missing[2]

In South Kalimantan alone, the worst flood that ever happened is in early 2021 which 10 of 13 districts/cities are affected by the flood which caused 24.379 house submerged and 34.549 people evacuated. The affected areas are Tapin District, Banjar District, Banjar Baru City, Tanah Laut City, Banjarmasin City, Hulu Sungai Tengah District, Balangan District, Tabalong District, Hulu Sungai Selatan District, and Batola District[3]. When viewed from the impact, rural areas are in the category of the worst impacted caused by flood, such as Hulu Sungai Tengah District and Banjar District.

The local government and apparatus were trying to do flood disaster management. In the most recent time, the flood disaster management is not only focused on structural protection, but also branch out to non structural protection which aimed to reduce the exposure and vulnerability[1]. But, as we all know, the flood disaster exposure will always exist along with population increase, therefore, in its handling needs bigger approach and strategy in non structural protection aspect, especially in the field of education, campaign, and promotion to lower vulnerability

The understanding of vulnerability is becoming one of the important things in flood disaster management. If a person understands the preparedness and behavior response against disaster, especially flood, then, the impact caused by the disaster can be suppressed, both material aspect and non material aspect. Age 15-24 years old or young adult holds an important role in the understanding of context, considering the characteristics Gen Z has and also adaptive towards change, information and technology, also becomes the focus in the development of future era, and they are expected to be capable of understanding the flood disaster vulnerability of where they live, so that they can suppress the danger and risk of the disaster.

Nevertheless, this matter is still an obstacle because often the vulnerability occurs associated with lack of information at the micro level for the young adults themselves, the environment of family, also the community, added with the information delivery that is not in maximum effort. BNPB expert (as quoted in CNN Indonesia) mentioned that the knowledge of community regarding natural disaster and its management is still minimal[4]. The same thing also can be obtained from the research conducted by Hayudityas (2020) where the children or the young adults at the time of education in Indonesia have already got education regarding disaster mitigation but still not optimal due to its incidental nature and not even[5]. In the incidental case, the education and information delivery only done after the disaster happened, and the unevenness can occur due to the effect of the uneven information dissemination which can be happen in the urban and rural areas. The potential for the problems occur in South Kalimantan Province based on BNPB data of the most affected area of the 2021 flood event is the rural area, which is Hulu Sungai Tengah District. Whereas in the urban area, the impact of flood tend relatively smaller.

Based on the description above, it is important to do a depth study to find out the preparedness and behavior toward flood risk, mainly by the young adults in the urban and rural areas in South Kalimantan Province. It is expected that the research can be a reflection for the future recommendation arrangement of information distribution and education regarding the mitigation of flood disaster.

II. MATERIAL AND METHODS

The research used the observational method with cross sectional approach with comparative test using chi square/fisher's exact by 95% confidence level to find out the correlation between variables which are threat assessment, disaster preparedness, evacuation and rescue management, also information exposure of the young adults with the flood risk of young adults in the urban and rural areas in South Kalimantan Province.

The population is all young adults age 15 up to 24 years old that live for the last 1 year in 10 districts/cities affected by the 2021 flood event in South Kalimantan Province, which are Tapin District, Banjar District, Banjar Baru City, Tanah Laut City, Banjarmasin City, Hulu Sungai Tengah District, Balangan District, Tabalong District, Hulu Sungai

Selatan District, and Batola District. The sampling technique used in the research is the incidental sampling and 564 young adults were obtained.

The instrument used in the research is a questionnaire that was arranged online with Google Form. The assessment indicators in each variable are presented in the following table.

Table 1. Assessment indicators of each variable

No	Main Variable	Indicator	Code
1	Area Characteristic (dependent variable)	Urban Area (Banjar Baru City, Tanah Laut City, Banjarmasin City) Rural Area (Tapin District, Banjar District, Hulu Sungai Tengah District, Balangan District, Tabalong District, Hulu Sungai Selatan District, Batola District)	M1
2	Threat Assessment (independent variable)	Knowledge regarding Flood Knowledge of flood prone area Knowledge of health risk caused by flood Knowledge of flood case trend Knowledge of flood characteristics and signs	A1 A2 A3 A4 A5
3	Disaster Preparedness (independent variable)	Preparedness skill (individual, family and surrounding environment) The desire to protect Skill of equipment preparedness in facing disaster Skill of understanding household items Skill of identifying essential items	B1 B2 B3 B4 B5
4	Evacuation and Rescue Management (independent variable)	Understanding of rescue techniques Understanding of evacuation techniques Understanding of family rescue plant Rescue management efficiency Self faith and confidence in doing evacuation and rescue	C1 C2 C3 C4 C5
5	Information Exposure (independent variable)	Flood information exposure Obtained education regarding flood Obtained training regarding flood Independent information search regarding flood	D1 D2 D3 D4

The data analysis used in the research is the univariate analysis, which aims to describe the characteristics of each research variable, both dependent and independent separately by creating a table or diagram of frequency distribution, including area characteristic (urban and rural), as for the independent variables in the research are threat assessment, disaster preparedness, evacuation and rescue management, and information exposure. The next analysis is the bivariate analysis, which aims to clarify the correlation between each independent and dependent variable. The bivariate analysis used chi square test or fisher's exact test to see the significance of statistic calculation between 2 variables using 0,05 (95%) CI limit.

III. RESULTS

The data collection was done in May-June 2021 by using the online questionnaire to the respondents that reside in Tapin District, Banjar District, Banjar Baru City, Tanah Laut City, Banjarmasin City, Hulu Sungai Tengah District, Balangan District, Tabalong District, Hulu Sungai Selatan District, and Batola District in the amount 564 respondents. The frequency and distribution of respondent characteristics are presented in the following table.

Table 2. Frequency and distribution of respondent

No	Variable	Frequency	Percentage
1	**Sex**		
	Male	144	25,5%
	Female	420	74,5%
2	**Age**		
	13-18 years old	88	15.6%
	19-24 years old	476	84.4%
3	**Education**		
	Elementary school	6	1,1%
	Junior high school	39	6,9%
	High school	450	79,8%
	Higher education	69	12,2%
4	**Domicile**		
	Rural	361	64%
	Balangan	47	8,3%
	Banjar	61	10,8%
	Barito Kuala	22	3,9%
	Hulu Sungai Selatan	31	5,5%
	Hulu Sungai Tengah	89	15,8%
	Tabalong	57	10,1%
	Tapin	54	9,6%
	Urban	203	36%
	Banjar Baru	52	9,2%
	Banjarmasin	99	17,6%
	Tanah Laut	52	9,2%
5	**Residence Period**		
	1-5 years	60	10,6%
	More than 5 years	504	89,4%
6	**2021 Flood Event**		
	No flood	148	26,2%
	Flood	416	73,8%
7	**Flood Duration**		
	Never	148	26,2%
	Less than 3 days	141	25%
	3-7 days	177	31,4%
	8-14 days	49	8,7%
	More than 14 days	49	8,7%
8	**Flood Impact**		
	No significant impact (did not obstruct activity, did not cause material or non material loss)	179	31,7%
	Significantly impacted (did obstruct activity, did cause material or non material loss)	385	68,3%
9	**Threat Assessment**		
	Not good	108	19,1%
	Good	456	80,9%
10	**Disaster Preparedness**		
	Not good	60	10,6%
	Good	504	89,4%
11	**Evacuation and Rescue Management**		
	Not good	212	37,6%
	Good	352	62,4%
12	**Information Exposure**		
	Not good	232	41,1%
	Good	332	58,9%

Based on the table above, the majority of respondents are female (74,5%) and include in the age category of 19-24 years old (84,4%) with the latest education is high school or equal (79,8%). As for the area characteristic of the respondent's area will be categorized as urban if they responded with domiciled in Banjarmasin City, Banjar Baru City, or Tanah Laut City and the respondent's area will be categorized as rural if they responded with domiciled in Tapin District, Banjar District, Hulu Sungai Tengah District, Balangan District, Tabalong District, Hulu Sungai Selatan District, or Batola District. From the table above, it is noted that 361 respondents (64%) are categorized in rural areas, with details which is the most respondents are live in Banjarmasin City (17,6%), Hulu Sungai Tengah District in the amount of 89 respondents (15,8%) and Banjar District in the amount of 61 respondents (10,8%), also the most respondents have been living in their area for more than 5 years (89,4%). The majority of respondents have experienced the 2021 flood event (73,8%) for 3-7 days (31,4%), with the majority of respondents felt significant impact (68,3%) that their activities were obstructed and the flood caused material and non material loss.

It is also known that out of 564 respondents, the majority of respondents (80,9%) have good knowledge regarding threat assessment and have good disaster preparedness (89,5%). This indicates that theoretically the respondents have understood the flood threat and preparedness. As for the variable of evacuation and rescue management, the comparison of the respondent included in good category (62,4%) and not good category (37,6%), meanwhile, in the variable of information exposure, there are more respondents included in good category (58,9%) than not good category (41,1%).

The result of bivariate test used chi square test in preparedness and behavioral response to respondents' area characteristics. The result is presented in the following table.

Table 3. Bivariate test result

Variable	Area Characteristics of Respondents				Total		P value
	Rural		Urban				
	n	%	n	%	n	%	
Threat Assessment							
Not good	67	62,1	41	37,9	108	100	0,717
Good	294	64,5	162	35,5	456	100	
Disaster Preparedness							
Not good	40	66,7	20	33,3	60	100	0,755
Good	321	63,7	183	36,3	504	100	
Evacuation and Rescue Management							
Not good	154	72,6	58	27,4	212	100	0,001
Good	207	58,8	145	41,2	352	100	
Information Exposure							
Not good	164	70,7	68	29,3	232	100	0,037
Good	197	59,3	135	40,7	332	100	

III. DISCUSSION

A. The Correlation between Threat Assessment Factors with Area Characteristics of Respondents

The result of the statistic test using the chi square test shows that the p value = 0,717 (p > 0,05) means that Ho is accepted, then it can be concluded that the result of the statistic test indicates that there is no correlation between the threat assessment factors with the area characteristics of respondents. The result is understandable due to the respondents that live in the rural areas or the urban areas are equally have good threat assessment. The condition caused by the fact that the 10 districts/cities in South Kalimantan Province have the same history regarding flood disaster.

As an example, Banjar Baru City and Tanah Laut City in the early 2021 experienced a relatively massive flood. It is noted that the majority of respondents in the urban area in the amount of 65% felt a big and long lasting impact caused by flood which they experienced for 3-7 days (25,6%). As well as the rural area, such as Hulu Sungai Tengah District and Banjar District that also experienced big impact caused by the flood. Based on the prevalence of majority respondents with rural area characteristics in the amount of 70,1% felt a massive and long lasting impact caused by the flood for 3-7 days (34,6%).

The history and the impact caused by the flood disaster has the potential to increase the threat assessment of the young adults, both caused by the experience that forming the threat assessment, nor caused by the massive news that can interest young adults to learn the signs and characteristics of flood disaster. This matter is accordingly based on a research by Ma'arif et al. (2012), the research mentioned that the experience will play a role in knowledge and meaning towards natural disaster threat.

The findings of the research show that both rural area and urban area young adults have good threat assessment. A good assessment will build a good disaster mitigation behavior so that when a disaster occur, the young adults will be capable to assess the scale of the threat and can minimize the impact that may happen.

B. The Correlation between Disaster Preparedness with Area Characteristics of Respondents

The result of the statistic test using the chi square test shows that the p value = 0,755 (p > 0,05) means that Ho is accepted, then it can be concluded that the result of the statistic test indicates that there is no correlation between the disaster preparedness with the area characteristics of respondents. The result is understandable due to both of urban area respondents and rural area respondents equally more dominant to have good disaster preparedness. Good disaster preparedness can be caused by most of the respondents were just experiencing the impact of the 2021 flood event. It was noted that the majority of respondents of rural area characteristics (70,1%) experienced a massive impact caused by the flood and the majority of respondents of urban area characteristics (65%) also experienced a massive impact caused by the flood.

The disaster preparedness can be build by good knowledge and perception, it also can be caused by bad experience that ever happened as an impact of a disaster. The experience will make both rural and urban young adults have better preparedness in order to avoid a disaster, or in order to reduce worse impact if a disaster occur.

This matter is accordingly based on a research by Khasan and Widjanarko (2011), the research mentioned that after an individual experiencing a disaster, there will be a behavior that will minimize the impact and increase their preparedness. As an example, when the rainfall starts to increase, then, there will be a disaster preparedness behavior, such as putting electronic devices to a higher place, securing groceries and salvaging essential items.

C. The Correlation between Evacuation and Rescue Management with Area Characteristics of Respondents

The result of the statistic test using the chi square shows that the p value = 0,001 (p < 0,05) means that Ho is rejected, then it can be concluded that the result of the statistic test indicates that there is a correlation between the evacuation and rescue management with the area characteristics of respondents. The result is understandable due to the majority of rural area characteristic respondents have good evacuation and rescue management in the amount of 207 people, however the respondents that have poor evacuation and rescue management are in the amount 154 people. It is quite different in comparison with the urban area characteristic respondents, there are more respondents that have good evacuation and rescue management (145 people) than the respondents that have poor evacuation and rescue management (58 people).

The disparity may happen due to the practical skill the young adults have in the urban area is better than the young adults in rural area. The understanding of young adults in urban area regarding rescue technique, evacuation technique, family rescue plant and rescue management efficiency is better. The condition can happen due to a few things. The factors of information exposure and practical training facility through curricular, extracurricular and co-curricular for the young adults that still in school or university may be better in urban area than rural area. The availability of disaster evacuation facilities and infrastructures that belong to the community, government or private entity if a disaster happens, also can be a consideration for the young adults regarding their faith and believes in doing an evacuation or rescue if a disaster occur.

D. The Correlation between Information Exposure with Area Characteristcs of Respondents

The result of the statistic test using the chi square shows that the p value = 0,037 (p < 0,05) means that Ho is rejected, then it can be concluded that the result of the statistic test indicates that there is a correlation between the information exposure with the area characteristics of respondents. The result is understandable, based on the data, more than half of the respondents of rural area characteristic have good information exposure, but the respondents of urban area characteristic that have poor information

exposure is very few. Therefore, it can be concluded that there is still a gap of information exposure regarding flood disaster between the young adults in rural and urban area.

The condition is possible because based on the data, the respondents in urban areas or rural areas have good information exposure through news channels, mainstream media or other sources, also most of the respondents do frequent information searches independently regarding the flood. However, on the aspect of education and training regarding flood, there is still a gap, where the respondents that reside in rural area are still rarely getting the education and training than the respondents that reside in urban areas.

This matter can happen, one of the causes is the unevenness of institutions, either from the government, private entity or community that can give an education or a training, especially regarding flood to the young adults. The informations were obtained without the practice and training will feel less applicable, and the disaster education will not run optimally.

IV. CONCLUSION

The research result shows that each of p value in the variables of threat assessment, disaster preparedness, evacuation and rescue management, and disaster information exposure are 0,717; 0,755; 0,001 and 0,037 respectively, therefore, it can be concluded that there is no correlation between threat assessment and disaster preparedness with respondents' area characteristics, also there is a correlation between evacuation and rescue management and information exposure with respondents' area characteristics.

The recommendation that can be given as the result of the research is that an education regarding flood evacuation and rescue management of the young adults in the rural area is needed, especially the education of more practical components. The education provision can be done by extracurricular or co-curricular activities for the young adults that are still in school, as well as doing pick-up from related parties, such as SAR Agency, TNI, Police, non-governmental organization or other parties to increase the exposure of information towards the young adults in the rural area in order to face a disaster, especially flood. Also, there is a need to do a sustainable training/education activities of disaster mitigation in order to prepare the young adults in the urban or rural area to face a disaster and not hesitate to take make a decision in the rescue of oneself, family or others when a disaster occur.

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